

Report as of FY2010 for 2010VA142G: "Denitrifying bacterial community structure and diversity, and denitrification potential as affected by hydrologic design and soil properties in wetlands created in Chesapeake Piedmont, USA "

Publications

Project 2010VA142G has resulted in no reported publications as of FY2010.

Report Follows

Interim report on the progress of the project

May 12, 2011

Title of the project: *Denitrifying Bacterial Community Structure and Diversity, and Denitrification Potential as Affected by Hydrologic Design and Soil Properties in Wetlands*” (USGS Award # G10AP00139, Duration 09/01/1 – 08/31/11)

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Co-PI: Dr. Mary Voytek, USGS.

The project has been supporting a Master’s student, Rita Peralta who has been working on the lab analyses of soil samples. Rita is majoring in Environmental Science and Policy.

Wetland soils have been collected for the months of October, December 2010 and April 2011. DEA assays were completed within a week of each sampling. For the April 2011 DEA measurements of nitrous oxide emissions, using the Shimadzu 8A electron capture detector gas chromatograph (ECD GC), were delayed due to possible contamination of the column and detector by other products emitted in the samples. Troubleshooting of the ECD GC required heating of the detector and column overnight and adjustment of the settings to process samples at a higher temperature (320C).

DNA extractions have been completed through December 2010 samples. April 2011 soils will be processed beginning on May 11, 2011. Molecular analysis for October 2010 soils is complete. The qPCR procedure was completed for all samples through December 2010. Fingerprinting of the denitrifying bacterial communities using TRFLP was completed for October 2010 samples. Fingerprinting of Dec 2010 soils was delayed initially due to mechanical problems with the sequencer.

Soil moisture, pH, SOM and CHN analysis was completed for all soils through December 2010. Bulk density samples were collected and processed in November 2010. Soils collected on April 2011 have been air dried and will be processed for pH, SOM and CHN in the coming weeks.

The analyses have taken much longer time than we expected. Thus, we will be requesting a no-cost extension of the project soon.